Appendix H

Use and Application of Operational Safety Requirements

This appendix provides generic OSR materials. Specifically, it provides an example Use and Application Section (H.1-H.3), specifies generic MFRs and TRs to be used if MFRS are applicable (H.4-H.6), and states the administrative control required for deviations from OSRs (H.7).

The Use and Application section is the first section in OSRs that utilize MFR controls. It contains basic information and instructions for using and applying the information found in the OSRs. The following minimum elements shown in the examples of this Appendix (H.1-H.3) must be addressed: (1) definitions, (2) operational modes, and (3) frequency notation.

The MFR/TR section is the second section in OSRs that utilize MFR controls. When MFRS are assigned, they are preceded by a standard set of generic MFRs and TRs that define the logical framework within which the facility-specific MFRs and TRs operate. The language for generic MFRs and TRs is standardized as cited in Sections H.5 and H.6.

The Administrative Control section is the third section in OSRs that utilizes MFR controls of those noted in the first section that do not. The first Administrative Control is always Z.1 (H.7 in this appendix), which generically defines the requirements for what constitutes an OSR violation and what must be done in response to such violations. The language for this control is also standardized.

As noted above, a Use and Application section, modified per a given facility's needs, and the generic MFRs and TRs need only be included in OSRs if MFRs are assigned as controls. The provisions for deviations from OSRs are applicable to all OSRs. However, they may simply be referenced in the OSRs for a specific facility as opposed to verbatim reproduction. Where this is done, the annotation "Per ES&H Manual Document 3.1" is the only entry required under the heading "Z.1 Deviations from OSRs."

USE AND APPLICATION

H.1 Definitions

The definitions in Table H-1 are applicable to Building _____ OSRs. The defined terms appear in capitalized type.

TableH-1. Definitions of terms.

Term	Definition
ACTIONS	The steps listed in each requirement required to be performed when the specified MFR is not met.
ADMINISTRATIVE CONTROLS	OSR controls not establishing requirements for structures, systems, and components and maintained solely as a management function.
AUTHORIZATION BASIS	Those aspects of the facility design basis and operational requirements relied upon to authorize operation
COMPLETION TIME	The amount of time required to complete an action.
DESIGN FEATURE	Passive structures, systems, and components of a facility specified in the OSRs that, if altered or modified, would have a significant effect on safe operation.
EXPLOSIVES	Any chemical compound or mechanical mixture which is designed to function as an explosive, or a chemical compound which functions through self-reaction as an explosive and which, when subjected to heat, impact, friction, shock or other suitable initiation stimulus, undergoes a very rapid chemical change with the evolution of large volumes of highly heated gases that exert pressures in the surrounding medium. The term applies to materials that either detonate or deflagrate.
HAZARDOUS MATERIAL	Material which, if unconfined, could result in an unacceptable consequence to the onsite worker or the public. Hazardous Material has one or more of the following characteristics: (a) has a flash point below 140°F or is subject to spontaneous heating; (b) has a threshold limit value below 500 ppm for gases and vapors, below 500 mg/m^3 for fumes, and below 25 mp/ft^3 (million particles per cubic foot) for dusts; (c) has a single dose oral LD50 below 50 mg/kg; (d) is subject to polymerization with the release of large amounts of energy; (e) is a strong oxidizing or reducing agent; or (g) in the course of normal operations, may produce dusts, gases, fumes, vapors, mists, or smokes that have one or more of the above characteristics. Also included are substances that are carcinogens that damage the lungs, skin, eyes, or mucous membranes.
IMMEDIATELY	As a COMPLETION TIME, the minimal amount of time required to safely complete the activity, not to exceed 1 hour.

Table H-1. Definitions of terms (cont'd).

Term	Definition
MINIMUM FUNCTIONAL REQUIREMENTS (MFR)	The lowest functional capability or performance levels of equipment, restrictive parameters, or states required for safe operation of the facility.
MODE	Any facility condition specified in Section 1.2, Modes.
OPERABLE/OPERABILITY	A system, subsystem, train, component, or device is OPERABLE or has OPERABILITY when it is capable of performing its specified function(s) and when all necessary attendant instrumentation, controls, electrical power, cooling water, lubrication, or other auxiliary equipment required for the system, subsystem, train, component, or device to perform its function(s) are also capable of performing their related support function(s).
OPERATIONAL SAFETY REQUIREMENT (OSR)	A requirement that defines the bounding conditions for safe operation to reduce the potential risk to the public and co-located workers from facility hazards.
STORAGE	EXPLOSIVES, RADIOACTIVE and HAZARDOUS MATERIAL inventories are held stationary in authorized containers and locations. Limited periods of being held in place during an operation do not constitute storage.
RADIOACTIVE MATERIALS	Material that emits alpha, gamma, or neutron radiation and contains 1 nCi or more of radioactivity, or items with surface activity levels exceeding those specified in Appendix D of the LLNL *ES&H Manual*.
TESTING REQUIREMENT (TR)	Requirements relating to testing, calibration, or inspection to ensure that the necessary OPERABILITY of systems and components is maintained or that operations are within the specified MFRs.

H.2 Operational MODES

MODES serve as a means of categorizing the operational status of Building _____. Typical MODES defined are OPERATION and STANDBY. Specific definitions appropriate for a given facility would be provided in Section 1.1. More complex operations sometimes include additional MODES such as SHUTDOWN or MAINTENANCE. The use of a number of detailed MODES is not expected for most facilities covered by this document.

H.3 Frequency Notations

The standard frequencies for TRs are defined in Table H-2.

Table H-2. Surveillance frequency notations.

Notation	Frequency
Hourly (H)	At least once per 60 minutes
Shift (S)	At least once per 12 hours
Daily (D)	At least once per 24 hours
Weekly (W)	At least once per 7 days
Monthly (M)	At least once per 31 days
Quarterly (Q)	At least once per 92 days
Semiannually (SA)	At least once per 184 days
9 Months	At least once per 274 days
Annually (A)	At least once per 365 days
18 Months	At least once per 548 days
N.A.	Not applicable

H.4 MFRS AND SRS

H.5 Generic Minimum Functional Requirements

MFR 2.0.1	MFRs must be met during the MODES specified in the Applicability, except as provided in MFR 2.0.2. Completion of the required ACTIONS for the MODE is considered to be in compliance with the applicability of the MODE.
MFR 2.0.2	Upon discovery of a failure to meet an MFR, the associated ACTIONS must be met. If the MFR is restored before the specified COMPLETION TIME(S) expires, completion of the ACTION is not required, unless otherwise stated.
MFR 2.0.3	When an MFR is not met and the associated ACTIONS are not met, or when an associated ACTION is not provided, operations shall cease IMMEDIATELY and the facility shall be placed in the safest MODE for which the MFR is not applicable within 24 hours. Only those RADIOACTIVE, HAZARDOUS, OR EXPLOSIVES MATERIAL movements necessary to place or maintain the facility in a safe condition may occur. Any such movements or transfers must be approved by the Facility Manager. Where corrective measures are completed that permit operation in accordance with the MFR or ACTIONS, completion of the ACTIONS required by MFR 2.0.3 is not required. MFR 2.0.3 is applicable to the OPERATION MODE. Exceptions to MFR 2.0.3 may be stated in the individual MFRs.
MFR 2.0.4	Equipment removed from service or declared inoperable to comply with ACTIONS may be returned to service under administrative control solely to perform testing required to demonstrate its OPERABILITY, or the OPERABILITY of other equipment. This is an exception to MFR 2.0.2.
MFR 2.0.5	When a support system is inoperable and an MFR for that support system is specified in the TSRs, the supported system is not required to be declared inoperable due solely to the support system inoperability. Only the support system's ACTIONS are required to be entered. This is a clarification of the definition of OPERABILITY. MFR 2.0.2 is still applicable to the supported system.

H.6 Generic Testing Requirements

TR 3.0.1	TRs must be met during the operational MODES or other conditions specified for individual MFRs unless otherwise stated in the TR. Surveillances do not have to be performed on inoperable equipment or variables outside specified limits.
TR 3.0.2	Each TR shall be performed within the specified frequency. The specified frequency is considered met if the surveillance is performed within 1.25 times the interval specified in the frequency as measured from the previous performance or as measured from the time a specified condition of the frequency is met. Exceptions to TR 4.0.2 are stated in the individual TRs.
TR 3.0.3	If it is discovered that a surveillance was not performed within its specified frequency, compliance with the requirement to declare the MFR not met may be delayed from the time of discovery up to 24 hours, or up to the limit of the specified frequency, whichever is less. This delay period is permitted to allow performance of the surveillance. **Note:** The original failure to perform a TR within its specified frequency must still be reported as an OSR violation. If the surveillance is not performed within the delay period, or if it is performed and the surveillance is not met, the MFR shall IMMEDIATELY be declared not met, and the applicable ACTIONS shall be entered. The COMPLETION TIMES of the ACTIONS begin IMMEDIATELY on failure to meet the surveillance.
TR 3.0.4	Entry into an Operational Mode or other specified condition shall not be made unless the TRs associated with the MFRs have been performed within the stated surveillance interval or as otherwise specified.

H.7 Deviations from Operational Safety Requirements

The OSRs define the controls needed to ensure that the facility/operation remains within the AUTHORIZATION BASIS established. They shall be formally controlled with all changes requiring approval at the same level as the associated AUTHORIZATION BASIS document.

H.7.1 Compliance

The Facility Manager is responsible for ensuring that the OSR requirements are met. Compliance is demonstrated by:

- Maintaining facility operation within any MFRs, performing the associated TRs during their applicability, and taking any ACTIONS defined by the MFRs when required.
- Establishing, implementing, and maintaining the ACs identified in this document.

H.7.2 Violation

Violation of an OSR occurs as a result of three circumstances:

- Failure to complete an ACTION statement within the required time limit following failure to comply with an MFR;
- Failure to perform a TR within the required time limit; or
- Failure to comply with an AC statement.

Failure to comply with a specific AC constitutes an OSR violation. For programmatic ACs, violation occurs when the failure is of sufficient magnitude that the overall intent of the referenced program is not fulfilled.

H.7.3 Response to Violations

Response to an MFR Violation

If any MFR is violated, as stated above, proceed as follows:

1. Place the building in a safe condition by entering MFR 2.0.3.
2. Notify the AUTHORIZATION BASIS signature authority in accordance with applicable LLNL procedures.
3. Prepare an Occurrence Report Notification in accordance with applicable LLNL procedures.

Response to a TR Violation

If a STR has not been performed within the required frequency, proceed as follows:

1. Enter TR 3.0.3 and perform the TR within 24 hours.
    a. If the TR is successfully met, exit TR 3.0.3 and continue operation in a compliant condition. NOTE: Steps 2 and 3 below must still be completed.
    b. If the TR is not successfully met, enter the action of the applicable MFR.
2. Notify the AUTHORIZATION BASIS signature authority in accordance with applicable LLNL procedures.
3. Prepare an Occurrence Report Notification in accordance with applicable LLNL procedures.

Administrative Control Violation

If an Administrative Control is violated, proceed as follows:

1. Place the facility in a safe condition, and notify the AUTHORIZATION BASIS signature authority.
2. Prepare an Occurrence Report.
3. Prepare a recovery plan, if appropriate, describing the steps leading to compliance with the Administrative Control.
4. Perform and document a technical evaluation, if appropriate, of the Administrative Control violation to determine if any damage occurred.

H.7.4 Emergency Actions

Emergency actions may be taken that depart from a requirement in the OSR provided that:

- An emergency situation exists;
- These actions are needed immediately to protect health and safety; and
- No action consistent with the OSR can provide adequate or equivalent protection.

Such emergency actions shall be performed by personnel trained and qualified for the necessary equipment or systems. If an emergency action is taken, the AUTHORIZATION BASIS signature authority should be notified as soon as is practically possible.